R5650-2
8/30/88

JAPAN · ECONOMIC · INSTITUTE

JEI

REPORT

A Two-Part Report: A and B

NO. 33A

August 26, 1988

U.S. EXPORTS TO JAPAN: A REVIEW OF 1987 SALES

Summary

The weaker dollar did what it was supposed to do for 1987 Japan-bound U.S. exports. Saying that is not repeating the obvious since on paper sales to this country's second-biggest foreign customer were up by a paltry 5.1 percent to $28.3 billion. Shipments actually jumped 18.1 percent, but this robust performance, which was largely duplicated in volume terms, got lost in the trade results because the 1986 export total was inflated by a $3.1 billion transshipment of foreign bullion through the United States to Japan.

While giving a big push to exports, the dollar's 53 percent drop against the yen between February 1985 and yearend 1987 could not do the job alone. Brisk Japanese demand, buoyed by a spurt in residential construction as well as higher consumer spending and stepped-up business investment, exerted a simultaneous pull on exports, multiplying the gains for American suppliers. At the same time, U.S. producers generally were positioned to capitalize on new market opportunities, having been forced by the strong dollar in the first half of the 1980s to slash costs, improve quality and become more aggressive marketers.

Although the new dollar-yen relationship gave exporters a major boost, they still had problems. For one thing, American companies did not gain competitive ground in the Japanese market against Australian, Canadian, Korean and other Pacific Rim rivals whose currencies move in synch with the dollar or are weaker. Then, too, while many U.S. exporters held the line on prices or just raised them by small amounts, some suppliers put fatter profit margins ahead of market share considerations. On the other hand, part of the benefit of lower yen prices for American-made

products was absorbed by Japanese importers or distributors. Supply availability also was a problem in a few product lines because of strong demand here.

For most U.S. exporters, however, these constraints were no match for the push and pull of the weaker dollar and the strength of Japanese demand. Sales of industrial inputs and intermediate products advanced 16 percent to just below $10.2 billion, a new record, while exports of food and feed moved closer to their 1984 high with a 10.2 percent gain to almost $5.6 billion. Even more striking were the 15.5 percent jump in capital goods shipments to $7.8 billion and the 50.9 percent surge in consumer goods exports to nearly $2.6 billion.

Industrial Supplies

The 1980s have been a difficult, frequently frustrating time for American suppliers of many big-ticket industrial raw materials and intermediate inputs. Despite higher Japanese industrial production, U.S. exports have seesawed between limited gains one year and small losses the next. Last year was different. But just like the strong dollar had little to do with the checkered performance of sales in the first half of the decade, the weaker dollar deserved only partial credit for 1987's big export increase. The reason was simple. With the currencies of most competitors for Japan's import business linked at least loosely to the dollar, the dollar's fall did not give American producers a price advantage. Expanding sales in the Japanese market last year was largely a matter of targeting niches of strong demand and/or short supplies. The winner was the country that came out on top in terms of relative production and transportation costs, although product availability sometimes determined the ranking.

Logs and Lumber - Japanese residential construction activity in 1987 was at its highest level since 1973, thanks to a postwar low in conventional mortgage rates and an expanded government program of below-market financing. At nearly 1.7 million units, housing starts were 22.7 percent above 1986's total and 40.9 percent greater than the average for the 1980-85 period. Additional work for contractors, though, does not necessarily mean more business for sawmills, domestic or foreign, or Pacific Northwest softwood log exporters. What counts for mill operators is the number of wood houses built and their floor space, and for the first time in the 1980s both numbers were up significantly. The key figures for American log suppliers -- comparative international prices and the price spread between U.S. logs and Japanese ones -- also signaled bigger sales.

Pacific Northwest softwood log prices increased by a sizable margin in 1987, but the dollar's lower value still enabled exporters to undercut Soviet shippers, their chief rivals in Japan's imported softwood log market. In fact,

The JEI REPORT (ISSN 0744-6489) is published weekly except for the New Year, Memorial Day, Labor Day, Thanksgiving and Christmas holiday weeks for $40 per year by the Japan Economic Institute of America, 1000 Connecticut Avenue, N.W., Washington, D.C. 20036. Second class postage paid at Washington, D.C. POSTMASTERS: Send address changes to JEI REPORT, 1000 Connecticut Avenue, N.W., Washington, D.C. 20036.

American companies not only won a large part of the extra import volume generated by the housing boom but also rolled back the Soviet market share. At the same time, bargain prices on American softwood logs led Japanese sawmills to shift more of their business from domestic suppliers, normally the source of roughly one-half of the country's lumber, to the United States. This switch did not cut into U.S. softwood lumber shipments. On the contrary, exports reached a new high, in part because 2x4 construction methods, which are based on lumber milled to North American specifications, were used to build a record 40,000 units in 1987. This bonus plus gains in both hardwood log and lumber exports boosted U.S. wood sales 43.4 percent to $1.6 billion.

Paper Base Stocks - Higher-than-expected Japanese production of paper and especially paperboard products in 1987 helped U.S. exporters of paper base stocks keep sales on the upswing. So did the industry's continuing efforts to minimize its international cost handicap. That campaign produced another increase in the use of waste paper and paperboard -- a big plus for American recycling centers. It also led to the substitution of American and Australian wood chips for the domestic product since imported chips were as much as 30 percent cheaper. In reality, Japan's paper and paperboard mills had little choice. Tight world supplies made expanded purchases of imported paper pulp uneconomical, even after factoring in the benefits of the weaker dollar. Ironically, though, the run-up in U.S. pulp prices was the main reason exports of paper base stocks increased 32.6 percent last year to almost $0.8 billion.

Chemicals - Japan's petrochemical industry, on the critical list five years ago, operated at or near capacity in 1987. The low price of naphtha, the industry's dominant feedstock and fuel, continued to give manufacturers of both ethylene -- the basic building block for such intermediates as ethylene dichloride, propylene and acrylonitrile -- and benzene -- the raw material for derivatives like styrene monomer -- help on the cost front. The biggest difference between 1986 and last year, though, was Japanese demand for downstream products, particularly plastic materials. Demand, in fact, was strong enough to create periodic shortages of some commodity intermediates. This provided a wider opening for lower-cost American petrochemical producers, but they were unable to exploit this opportunity completely because capacity limitations and higher product demand had also led to tightening U.S. supplies.

U.S. suppliers of industrial inorganic chemicals also had trouble capitalizing fully on their cost advantage in commodity products like soda ash, sulfuric acid and industrial gases. The constraint here was not on the supply side. Instead, it was the uneven performance of the diverse Japanese end markets for these products -- housing, paper and pulp, automotive products, glass, fertilizers, detergents and other chemicals. With export gains in industrial inorganic chemicals limited at best and shipments off in the big-ticket category of uranium and thorium compounds for use in medical research and diagnostic procedures, sales of chemicals increased by a modest 7.7 percent to $1.9 billion despite higher-priced petrochemical exports.

Petroleum Products - West Coast oil refiners have become adept niche players in the Japanese market, using their surplus stocks of petroleum products to cover shortages caused by the long-term decline in Japanese production. For example, a persistent mismatch between supplies of heavy (residual) fuel oil and demand for this product for specialized uses, including bunker fuel for

coastal shipping, has generated a growing business for American and other exporters. West Coast suppliers, however, lost more of their heavy fuel oil sales last year to refineries in Southeast Asia because of a significant rise in U.S. prices. Shipments of light (distillate) fuel oil were off as well. On the other hand, Tokyo's January 1986 decision to lift the controls on imports of gasoline and kerosene continued to pay off for U.S. producers. On balance, therefore, sales of petroleum products advanced 16.5 percent in 1987 to almost $0.7 billion.

Food and Feed

The continuing fall in the dollar's value gave another boost to exports of fish, meat, fruits and vegetables and value-added food products in 1987. The bottom line in the food and feed category, however, is determined by what happens to two big-ticket bulk commodities, corn and soybeans, and that depends on a long list of factors -- demand for commercially mixed livestock and poultry feed in Japan, relative ingredient costs, exportable supplies and prices in major producing countries, and the dollar's value.

Corn - The weaker dollar on top of generally lower ingredient costs allowed Japan's formula feed industry to extend the string of price cuts that started in the April-June 1984 period through last year's four quarters. That kept demand on the upswing despite more pressure on the prices received by producers of broiler meat, eggs and milk. Compound feed production, in turn, went up for the sixth straight year. Unlike the gains of 1984 to 1986, this increase translated into added business for the world's corn exporters -- substantially more since corn not only supplied all of the extra volume needed to raise output but also displaced a large amount of relatively high-priced sorghum, the main beneficiary of the 1984-86 production rise.

The big question was which country would supply Japan's additional corn requirements, and here hard-pressed U.S. exporters, which had lost considerable sales in 1986 to Chinese and Argentine competitors, got a break. With smaller exportable supplies available in China and a below-average crop in Argentina, Japanese importers returned to the American market for a near-record volume of corn for formula feed use. U.S. corn suppliers actually benefited from a double windfall last year since predictions of a limited crop in South Africa, Japan's preferred supplier of corn to manufacture sweeteners and starch, led the trade to increase commitments for American corn. This bonus helped to lift shipments by two-fifths and even though export prices were down again, sales advanced 18 percent to $1 billion.

Soybeans - Increased Japanese production of commercially mixed feed in 1987 was no help to U.S. soybean exporters. Carryover stocks of soybean meal were above average because oilseed processors had not reduced the soybean crush enough in 1986 as relative vegetable protein meal prices moved in favor of greater rapeseed meal usage in formula feed. With rapeseed meal retaining its price edge last year and demand for vegetable oil fairly flat, the processing industry trimmed the soybean crush and expanded rapeseed crushing to meet oil demand while working down soybean meal stocks. This adjustment alone would have produced a cutback in soybean purchases from the United States, but importers also had overbought American soybeans in 1986. To make matters worse, the trade contracted for more soybeans from Brazil, which in 1985 broke this country's

monopoly on providing all the soybeans crushed by Japanese oilseed processors. The net result was a 6.4 percent drop in exports to under $0.8 billion.

Capital Goods

The true test of the marketing power of the weaker dollar, most analysts would argue, is the export performance of capital goods. Going by 1987's record $1 billion jump in sales (excluding volatile aerospace exports) and the single-digit increase in business investment in Japan, the dollar's fall unquestionably helped U.S. manufacturers of computers, measuring and testing instruments, medical equipment and a long list of other technology-intensive products to win battles with Japanese competitors on their home turf. At the same time, the factors shaping Japanese capital spending last year -- the manufacturing sector's ongoing attempt to cope with the strong yen through greater automation, diversification and development of new product and process technologies and the nonmanufacturing sector's need to expand and upgrade its computer and communications capabilities -- played to the competitive strengths of American machinery and equipment makers.

Computers - U.S. systems manufacturers have spent most of the 1980s defending their market position in Japan from further erosion by an expanding lineup of domestic challengers. By facilitating aggressive discounting, however, the declining dollar allowed American vendors to go on the offensive. This strategy worked in 1987, fragmentary information suggests, although suppliers got some help from the first significant increase in three years in corporate budgets for computer hardware expenditures.

For example, IBM Japan Ltd., after stumbling in 1986 while competitors Fujitsu, Ltd., NEC Corp. and Hitachi, Ltd. posted double-digit gains in home-market sales, boosted domestic revenues 15.6 percent to Y743.4 billion ($5.1 billion at 1987's average exchange rate of Y144.64=$1.00). A major part of this growth came in IBM's stronghold -- mainframes, particularly the 3090 series of large-capacity systems. But the computer giant also made gains in the market for midrange computers or what the Japanese call small business systems. So, apparently, did U.S. minicomputer industry leader Digital Equipment Corp. Where DEC and other American midrange computer makers did best, however, was in the market for superminicomputers and engineering workstations. On the other hand, U.S. producers of personal computers were stymied again in their attempt to break NEC's stranglehold on the expanding Japanese market for 16-bit units.

Changes in IBM Japan's sales are only partly reflected in the export statistics for computers and peripheral equipment since an estimated 70 percent of the products it sells in Japan are made there. Even so, the 22.7 percent increase in hardware exports to $1 billion gives additional weight to the assumption that U.S. manufacturers improved their Japanese market position in 1987. At the same time, IBM Japan's better performance showed up indirectly in the figures for parts, which jumped 32.6 percent to $0.8 billion.

Commercial Aircraft - Aircraft sales were off in 1987 as Japanese airlines took delivery of 16 planes -- one less than the year before, but this trade still was a $1 billion business. Japan Air Lines added two of Boeing Co.'s 747-300s to its fleet of jumbo jets -- one for international passenger service and the other for domestic routes -- plus a 747-200 freighter. It also

took delivery of two 767-300s for international use and three for service in Japan. For its part, All Nippon Airways acquired another 747-200 to facilitate the expansion of international flights, while adding six 767s, including its first four 767-300s, to handle passenger traffic in Japan. Moreover, McDonnell Douglas Corp. delivered an MD-81 to Japan Air System (formerly Toa Domestic Airlines), the number-three Japanese carrier.

Consumer Goods

If the big gain in capital goods sales was not sufficient proof of the competitive benefits of the weaker dollar for exporters of manufactured products, then the 51 percent jump in consumer goods sales certainly was. Luxury goods -- diamonds, jewelry, artworks -- admittedly accounted for a significant part of this advance. The export results also were skewed by surging sales of cigarettes, which profited not only from the lower dollar but also from April 1987 changes in Japan's restrictive cigarette pricing policies. Still, substantial sales increases were posted in a cross section of other consumer durables and nondurables.

Pharmaceuticals - On paper pharmaceuticals seemed to be the major exception in the consumer goods category since exports were up by a modest 8 percent to $0.7 billion. This outcome, however, was almost entirely the result of an AIDS-related cutback in the big trade in blood products. Otherwise, American drug companies successfully capitalized in 1987 on the first significant expansion in pharmaceutical sales in Japan in five years. The common strategy for dealing with the fallout from the five rounds of cuts in official drug prices instituted by the Ministry of Health and Welfare in the 1980s involved targeting emerging growth markets where U.S. pharmaceutical houses are ahead of their Japanese competitors -- cardiovascular drugs and diagnostic testing, for example, while continuing to fight for sales of antibiotics, the mainstay of Japan's top manufacturers.

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The views expressed in this report are those of the author and do not necessarily represent those of the Japan Economic Institute.

U.S. Exports to Japan by Commodity, 1986 and 1987

(in millions of dollars and indicated quantity units)

Commodity	Quantity 1986	Quantity 1987	Value 1986	Value 1987	Percent Change 1986/87	Japan's Share of U.S. Exports 1987
Total Exports			$26,881.6	$28,248.6	5.1%	11.2%
Industrial Supplies			8,751.5	10,155.7	16.0	15.3
Logs and Lumber	2,958,691 mbf	3,621,057 mbf	1,097.4	1,573.4	43.4	52.3
Logs	2,076,718 mbf	2,397,115 mbf	788.9	1,127.6	42.9	68.0
Douglas-fir Logs	1,216,461 mbf	1,386,987 mbf	451.0	617.9	37.0	81.3
Spruce Logs	121,935 mbf	163,634 mbf	70.3	106.0	50.8	64.1
Western Hemlock Logs	621,822 mbf	705,863 mbf	198.8	297.9	49.8	62.4
Lumber	881,973 mbf	1,223,942 mbf	308.5	445.8	44.5	33.0
Rough Hemlock Lumber	193,631 mbf	211,772 mbf	55.2	69.2	25.4	88.1
Dressed Hemlock Lumber	308,743 mbf	394,751 mbf	96.9	130.8	35.0	92.2
Dressed Douglas-fir Lumber	88,724 mbf	103,824 mbf	28.1	34.7	23.5	53.7
Paper Base Stocks			563.8	747.8	32.6	24.7
Wood Chips	2,115,988 stn	2,481,142 stn	154.3	184.3	19.4	97.8
Wood Pulp	948,591 stn	977,233 stn	359.3	470.3	30.9	21.0
Waste Paper and Paperboard	399,064 stn	659,911 stn	47.2	93.0	97.0	16.8
Paper and Paper Products			354.0	398.8	12.7	13.2
Newsprint	194,127 stn	200,314 stn	123.2	148.6	20.6	70.7
Kraft Linerboard	166,110 stn	167,093 stn	50.1	57.3	14.4	7.1
Coated Container Base Stock	143,604 stn	150,984 stn	102.7	109.3	6.4	49.3
Bituminous Coal	11,369,424 stn	10,597,276 stn	544.7	484.5	-11.1	14.6
Coking Coal	10,478,546 stn	9,626,567 stn	518.9	448.1	-13.6	19.8
Steam Coal	890,878 stn	970,709 stn	35.8	36.4	1.7	3.5
Petroleum Products			567.7	661.3	16.5	17.4
Gasoline	4,539,690 bbl	5,607,788 bbl	79.0	126.7	60.4	43.4
Jet Fuel (kerosene type)	1,396,427 bbl	2,624,526 bbl	33.4	56.2	68.3	25.7
Light Fuel Oils	5,720,741 bbl	5,388,904 bbl	115.4	105.5	-8.6	25.0
Heavy Fuel Oils	9,315,609 bbl	8,363,866 bbl	132.1	143.3	8.5	13.7
Lubricating Oils			27.9	35.6	27.6	5.9
Petroleum Coke (excl. calcined)	3,440,614 stn	3,840,515 stn	119.2	128.0	7.4	32.2
Natural Gas	52,670,591 mcf	49,475,098 mcf	187.0	144.3	-22.8	99.7
Nuclear Reactor Fuels			28.7	4.2	-85.4	3.2
Chemicals (excl. plastics, fertilizers and insecticides)			1,726.4	1,859.0	7.7	14.2
Acyclic Hydrocarbons			26.8	19.9	-25.7	6.8
Cyclic Hydrocarbons			57.1	65.4	14.5	8.7
Para-xylene	28,415,688 gal	17,463,016 gal	39.9	20.6	-48.4	15.6
Cyclic Organic Compounds			2.3	43.6	1,795.7	18.9
Toluene	2,090 gal	35,638,695 gal	0.1	28.7	28,600.0	25.6
Cyclic Organic Intermediate Chemical Compounds			159.9	180.6	12.9	11.0
Alcohols, Phenols and Their Derivatives			67.3	62.1	-7.7	25.0
Nitrogen Function Compounds and Their Derivatives	26,436 stn	28,082 stn	31.1	33.2	6.8	16.5
Acyclic Organic Chemical Products			346.3	414.7	19.8	13.7
Ethylene Dichloride	162,392 stn	177,257 stn	32.0	39.8	24.4	37.2
Acrylonitrile	102,145 stn	106,695 stn	49.7	62.9	26.6	18.6
Vinyl Acetate Monomer	57,582 stn	56,258 stn	22.3	27.4	22.9	15.4
Plasticizers and Rubber-Processing Chemicals			19.5	28.9	48.2	12.8

Commodity	Quantity 1986	Quantity 1987	Value 1986	Value 1987	Percent Change 1986/87	Japan's Share of U.S. Exports 1987
Uranium and Thorium Compounds	798 stn	712 stn	$600.2	$520.2	-13.3%	59.4%
Sodium Compounds			53.4	59.7	11.8	7.6
Soda Ash	235,465 stn	247,013 stn	26.6	31.8	19.5	12.8
Pigments			29.7	37.8	27.3	13.2
Color Lakes and Toners, Dyes and Paints			40.5	43.8	8.1	7.2
Synthetic Detergents			19.3	43.0	122.8	41.4
Antiknock Compounds and Additives for Lubricating Oils			58.6	61.5	4.9	7.6
Laboratory Reagent Preparations			31.7	33.4	5.4	17.2
Fertilizers and Fertilizer Materials			99.1	152.7	57.1	6.8
Unmixed Pesticides			80.6	68.4	-15.1	9.3
Manufactured Pesticides			66.7	77.0	15.4	10.5
Plastic and Synthetic Resin Compounds			322.0	403.9	25.4	8.0
Polycarbonate Resins	9,987 stn	18,714 stn	22.3	43.3	94.2	26.3
Film, Strips and Sheets			54.5	66.5	22.0	8.4
Synthetic Rubber			65.8	64.9	-1.4	8.5
Still X-Ray Film	63,066,347 sft	70,385,911 sft	49.6	55.1	11.1	34.4
Graphic Arts Film	69,118,972 sft	76,143,885 sft	31.0	32.5	4.8	24.5
Still Photographic Film (excl. film packaged for retail sale)	24,933,414 sft	25,381,361 sft	41.6	42.5	2.2	15.2
Photosensitive Papers			33.3	31.1	-6.6	9.3
Steel Scrap	1,725,068 stn	985,689 stn	170.0	123.1	-27.6	12.7
Nonferrous Ores and Scrap			491.8	553.9	12.6	29.9
Copper Ore	145,104 stn	109,737 stn	141.3	122.1	-13.6	77.8
Copper Scrap	42,154 stn	43,640 stn	43.7	54.7	25.2	18.1
Aluminum Scrap	264,115 stn	290,235 stn	223.8	300.9	34.5	73.4
Silver	4,211,631 toz	5,567,683 toz	23.1	37.2	61.0	39.1
Platinum and Platinum Group Metals	108,312 toz	120,748 toz	29.9	41.4	38.5	29.5
Copper and Copper Alloys			8.3	26.6	220.5	7.7
Aluminum and Aluminum Alloys			188.4	358.2	90.1	29.8
Aluminum Ingot	144,849 stn	250,097 stn	161.7	310.6	92.1	74.9
Aluminum Plates, Sheets and [illegible]ip	4,590 stn	9,602 stn	14.4	29.8	106.9	5.4
Unwrought Magnesium	9,926 stn	9,671 stn	25.8	23.6	-8.5	21.3
Wrought Zirconium	364 stn	399 stn	20.0	25.1	25.5	44.3
Gold	569,906 toz	16,945 toz	243.9	4.7	-98.1	0.2
Steel (incl. ferroalloys)			51.7	47.1	-8.9	3.6
Silicon			33.2	55.0	65.7	51.8
Unmanufactured Nonmetallic Minerals			111.5	133.2	19.5	16.2
Kaolin Clay	455,408 stn	561,494 stn	65.3	84.0	28.6	24.7
Other Clays			27.2	25.2	-7.4	19.3
Manufactured Mineral Supplies			128.0	146.3	14.3	9.2
Glass (excl. automotive and mirror glass)			36.0	41.5	15.3	9.5
Industrial Textile Fibers, Yarns and Fabrics			74.1	112.4	51.7	3.8
Manmade-Fiber Yarns	7,583 stn	9,455 stn	22.4	29.0	29.5	5.8
Raw Cotton	784,735 rba	1,328,326 rba	238.6	413.7	73.4	25.4
Hides and Skins			331.4	369.6	11.5	25.5
Whole Cattle Hides	6,624,385 pc	5,929,002 pc	302.2	332.6	10.1	25.5
Leaf Tobacco	40,736 stn	52,686 stn	227.1	300.8	32.5	27.6
Stemmed Flue-Cured Leaf	22,192 stn	32,861 stn	148.4	217.6	46.6	36.5
Stemmed Burley Leaf	12,681 stn	15,953 stn	74.5	78.0	5.0	31.2
Capital Goods						
Nonelectric Machinery			6,727.5	7,769.0	15.5	6.9
			3,561.7	4,231.1	18.8	8.2

Commodity	Quantity 1986	Quantity 1987	Value 1986	Value 1987	Percent Change 1986/87	Japan's Share of U.S. Exports 1987
Data Processing Equipment			$1,400.6	$1,777.1	26.9%	9.6%
Computers			404.2	498.5	23.3	12.2
Peripheral Equipment and Parts			897.1	1,127.9	25.7	8.4
Disk and Tape Storage Units			104.1	127.9	22.9	9.0
Terminals			40.5	54.4	34.3	5.2
Parts			592.7	786.2	32.6	8.9
Magnetic Computer Disks and Tapes and Computer Programs			79.8	99.9	25.2	11.7
Semiconductor Production and Assembly Equipment and Parts			155.8	125.5	-19.5	16.6
Measuring, Testing and Controlling Instruments and Parts			581.1	699.8	20.4	13.1
Industrial Process-Type Instruments and Parts			40.4	49.8	23.3	7.2
Chemical Analysis Equipment and Parts			56.3	81.6	44.9	12.7
Physical Analysis Equipment and Parts			52.7	72.7	38.0	14.4
Equipment for Testing Electrical, Radio and Communications Circuits and Parts			258.0	318.3	23.4	20.7
Waveform Measuring and/or Analyzing Apparatus and Parts			42.3	47.7	12.8	17.0
Instruments for Measuring or Testing Combinations of Electrical Characteristics and Parts			132.4	164.1	23.9	26.4
Instruments for Measuring or Checking Electrical Quantities and Parts			25.5	25.6	0.4	13.8
Scientific, Professional and Medical Equipment			337.0	433.6	28.7	15.0
Electromedical and Electrotherapeutic Apparatus and Parts (excl. X-ray apparatus)			149.9	207.5	38.4	16.9
Medical Equipment Based on X-Rays and Parts			43.8	54.0	23.3	21.1
Other Medical, Dental and Surgical Instruments and Parts			116.8	139.5	19.4	12.5
Bougies, Catheters, Drains and Sondes and Parts			38.6	50.2	30.1	19.3
Power Generating Equipment (excl. aircraft and automotive engines)			77.1	108.6	40.9	5.6
Gas Turbines and Parts for Mechanical Drives			21.6	37.3	72.7	8.2
Nonfarm Tractors, Parts and Attachments			63.4	78.0	23.0	5.2
Parts of Tracklaying Tractors			39.3	36.4	-7.4	8.2
Excavating and Paving Machinery and Parts			33.5	37.0	10.4	2.5
Drilling and Oilfield Equipment			62.3	14.4	-76.9	0.8
Parts and Accessories for Oilfield and Gasfield Drilling Equipment			55.7	11.3	-79.7	0.8
Machinery and Parts for Making or Finishing Pulp, Paper and Paperboard			28.9	20.4	-29.4	6.7
Machine Tools and Parts			83.3	74.8	-10.2	7.6
Parts			31.5	20.7	-34.3	5.8
Commercial and Industrial Heating and Cooling Equipment and Parts			42.9	51.7	20.5	6.0
Pumps and Compressors			51.6	55.7	8.0	8.2
Filtering and Purifying Machinery and Parts			44.7	59.7	33.6	11.6
Taps, Cocks, Valves and Similar Devices and Parts			37.1	49.3	32.9	7.0
Equipment for Service Industries			143.7	196.1	36.5	7.9
Still Camera Parts			19.5	25.2	29.2	19.3
Magnetic Recording Media (not recorded)			19.2	25.1	30.7	7.9
Electric Machinery			977.5	1,218.6	24.7	6.9
Semiconductors			294.3	469.7	59.6	7.6
Discrete Devices and Parts			40.9	72.4	77.0	6.2
Parts			18.5	51.4	177.8	6.3
Integrated Circuits			144.6	234.3	62.0	14.4

Commodity	Quantity 1986	Quantity 1987	Value 1986	Value 1987	Percent Change 1986/87	Japan's Share of U.S. Exports 1987
Linear Integrated Circuits			$28.6	$34.0	18.9%	13.1%
Digital Bipolar Logic Integrated Circuits			30.9	30.0	-2.9	12.1
Digital MOS Microprocessors			21.3	41.3	93.9	17.2
Chips, Dice and Wafers			107.0	163.0	52.3	4.7
Printed Circuit Boards	1,049,327 no	1,196,805 no	22.4	27.6	23.2	5.0
Electronic Tubes (excl. television picture tubes)			32.1	29.1	-6.2	12.1
Telephone Equipment and Parts			72.3	62.5	-13.6	7.8
Microphones, Loudspeakers and Amplifiers and Parts			23.7	30.7	29.5	12.5
Radar Apparatus (excl. for planes and boats) and Parts			92.2	154.3	67.4	21.0
Parts			84.9	128.3	51.1	20.7
Generators, Transformers and Accessories			73.7	68.3	-7.3	4.3
Switches and Relays			30.4	26.6	-12.5	7.7
Connectors			45.1	50.4	11.8	10.3
Transportation Equipment			2,188.3	2,319.3	6.0	5.5
Civilian Aircraft			1,161.3	1,094.9	-5.7	14.6
Passenger, Cargo and Combination Jet Transports	17 no	16 no	1,130.3	1,028.1	-9.0	16.1
Helicopters (2,000 pounds and over)	9 no	32 no	10.2	34.2	235.3	19.7
Civilian Aircraft Engines, Parts and Accessories			659.6	753.6	14.3	9.1
Jet Turbines			37.9	42.7	12.7	3.6
Jet Engine Parts			230.3	251.2	9.1	11.6
Parts for Civilian Aircraft			350.1	409.3	16.9	9.7
New Cars	2,759 no	4,721 no	42.4	72.3	70.5	1.1
Automotive Parts, Engines and Bodies			235.0	274.4	16.8	1.9
Tires and Tubes			20.7	60.2	190.8	16.2
Parts for Ships and Boats			4.6	26.8	482.6	7.9
Food and Feed			5,042.8	5,555.1	10.2	23.1
Corn (excl. seed and popcorn)	361,006,823 bu	505,781,408 bu	866.0	1,022.0	18.0	31.9
Sorghum (excl. seed)	84,437,152 bu	92,610,981 bu	177.3	180.8	2.0	46.4
Soybeans (excl. seed)	151,441,602 bu	139,477,174 bu	837.2	783.5	-6.4	18.2
Animal Feeds			232.7	228.1	-2.0	8.5
Dried Beet Pulp	454,878 stn	398,477 stn	55.1	44.4	-19.4	52.0
Hay and Straw	333,623 stn	353,667 stn	45.0	44.0	-2.2	96.1
Alfalfa Hay Cubes	597,935 stn	562,187 stn	77.5	67.6	-12.8	95.7
Corn Gluten Meal	79,479 stn	108,519 stn	18.0	26.2	45.6	56.1
Wheat	118,472,413 bu	110,190,704 bu	424.3	352.3	-17.0	11.8
Fruits and Vegetables			584.0	664.5	13.8	22.5
Lemons	135,352 stn	139,164 stn	83.0	82.0	-1.2	88.0
Grapefruit	172,178 stn	222,696 stn	74.1	95.5	28.9	56.5
Oranges and Tangerines	123,622 stn	135,353 stn	68.5	79.5	16.1	35.5
Cherries	4,337 stn	13,061 stn	10.6	32.9	210.4	63.2
Other Fresh Non-Citrus Fruit			39.5	48.7	23.3	12.2
Fruit and Vegetable Juices			28.6	39.9	39.5	20.8
Canned Corn	26,565 stn	41,986 stn	18.3	28.6	56.3	43.0
Frozen Vegetables			84.2	99.6	18.3	68.9
Frozen French Fried Potatoes	72,409 stn	88,803 stn	45.0	57.0	26.7	83.0
Almonds			89.7	69.4	-22.6	14.9
Chocolate			22.5	30.6	36.0	35.7
Meat and Meat Products			760.9	898.3	18.1	50.8
Fresh and Frozen Beef	122,334 stn	139,266 stn	470.7	549.9	16.8	72.8
Fresh and Frozen Beef Offals	53,029 stn	59,731 stn	119.4	140.4	17.6	46.0
Fresh and Frozen Pork	13,176 stn	21,511 stn	52.3	90.5	73.0	78.8
Fresh and Frozen Poultry	85,323 stn	87,332 stn	91.2	93.6	2.6	24.4

Commodity	Quantity 1986	Quantity 1987	Value 1986	Value 1987	Percent Change 1986/87	Japan's Share of U.S. Exports 1987
Eggs (not in the shell)	24,922 stn	14,626 stn	$34.6	$27.1	-21.7%	72.8%
Fish and Fish Products			864.2	1,058.8	22.5	66.7
Fresh and Frozen Whole Salmon	108,482 stn	97,070 stn	445.6	457.2	2.6	75.7
Fresh and Frozen Whole Herring	31,907 stn	33,811 stn	46.8	59.4	26.9	72.9
Fish Roe	13,753 stn	11,882 stn	87.6	94.2	7.5	85.0
Frozen Crab	14,867 stn	23,909 stn	79.1	169.3	114.0	87.7
Consumer Goods			1,689.9	2,550.8	50.9	14.7
Pharmaceuticals			647.4	699.0	8.0	20.6
Bulk Antibiotics			196.4	250.0	27.3	31.8
Bulk Cardiovascular Drugs			51.1	56.2	10.0	21.0
Diagnostic Reagents			30.6	41.4	35.3	16.3
Blood and Blood Derivatives			170.2	109.3	-35.8	34.0
Cigarettes	481,915,900 pk	1,597,546,000 pk	128.0	491.9	284.3	24.0
Electric Household Appliances (incl. air conditioners)			41.1	43.4	5.6	3.3
Stainless Steel Cooking and Kitchenware			27.1	40.9	50.9	72.6
Records and Consumer Electronics			31.3	42.7	36.4	7.4
Records			14.4	27.5	91.0	33.2
Musical Instruments and Parts			20.6	36.6	77.7	21.5
Toys and Sporting Goods			108.9	204.3	87.6	16.9
Golf Equipment			39.2	76.4	94.9	43.3
Still Film in Cartridges and Rolls	28,535,398 no	25,896,776 no	47.2	46.6	-1.3	32.0
Floor Coverings of Textile Materials			17.4	26.7	53.4	10.8
Nonwoven Fabrics of Manmade Fibers	5,616 stn	5,258 stn	35.0	33.1	-5.4	19.0
Clothing			45.8	98.0	114.0	8.5
Footwear			36.4	50.9	39.8	27.4
Gem Diamonds and Other Gem Stones			96.3	149.2	54.9	20.2
Jewelry			33.6	49.2	46.4	17.4
Works of Art			64.3	149.6	132.7	28.8
Numanistic Coins			24.2	25.6	5.8	20.7
Printed Material			63.5	78.0	22.8	5.0
Miscellaneous			4,669.9	2,218.0	-52.5	6.5
Military-Type Goods			261.8	437.2	67.0	8.1
Other Domestic Exports			679.1	873.0	28.6	4.5
Minimum Value Shipments			102.3	203.0	98.4	3.6
All Other Domestic Exports			188.5	205.7	9.1	4.7
Parts for Aircraft and Aircraft Engines (not civilian)			388.3	464.3	19.6	15.1
Re-exports			3,729.0	907.8	-75.7	10.1
Bullion	6,755,228 toz	20,310 toz	3,095.5	9.5	-99.7	8.8

Key to quantity abbreviations: bbl = barrels; bu = bushels; gal = gallons; mbf = thousand board feet; mcf = thousand cubic feet; no = number; pc = pieces; pk = packs; rba = running bales; sft = square feet; stn = short tons; toz = troy ounces

Source: U.S. Department of Commerce, U.S. Exports: Schedule E Commodity by Country (FT 410), December 1986 and December 1987.